

BELLCOMM, INC.

1100 Seventeenth Street, N.W. Washington, D. C. 20036

SUBJECT: Trip Report - Vidicon Technology
Discussions with BTL - Case 710**DATE:** August 20, 1968**FROM:** P. L. ChandeyssonMEMORANDUM FOR FILE

On July 24, 1968, Messrs. Briggs, Shipley, Thompson, and Chandeysson visited Messrs. Crowe, Gordon, and Smith of BTL (Murray Hill) to discuss vidicon technology. The Bellcomm representatives outlined the design, calibration, and operation of the cameras for the 1964 Mariner IV and the 1969 Mariner flyby missions. The '69 Mariner cameras probably will also be used on the early Mars orbital missions. They are calibrated photometrically before flight; the only post-encounter check that appears possible is photographing the dark sky. The importance of photometric accuracy in detecting atmospheric haze and seasonal changes in the surface albedo of Mars was pointed out.

The BTL representatives doubted that the photometric properties of a vidicon would remain unchanged during the mission duration of several months. They recommended calibration with known intensity light sources during or immediately after the photo sequence; checking the black sky response is not enough.

BTL is developing a new vidicon target (light sensitive surface) which would be more stable photometrically than conventional targets. It consists of a wafer of silicon about an inch in diameter containing an array of several hundred thousand photo-diodes each a few microns in diameter. Integrated circuit production techniques are used to make the diode array. Cameras using the silicon target have been operated successfully in the laboratory. In addition to the improved stability, the target has greater light sensitivity than conventional targets, infra-red sensitivity beyond 1μ , and resistance to damage by inadvertant exposure to the sun. Figure 1 shows the spectral response of the silicon target compared with a conventional vidicon target.

Paul L. Chandeysson
P. L. Chandeysson

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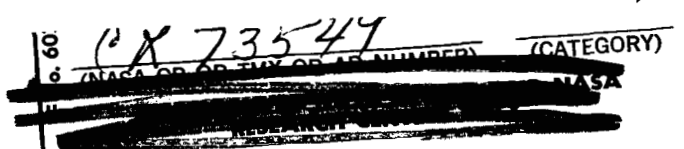
Attachment

F (NASA-CR-73549) VIDICON TECHNOLOGY
DISCUSSIONS WITH BTL, TRIP REPORT (Bellcomm,
Inc.) 3 p

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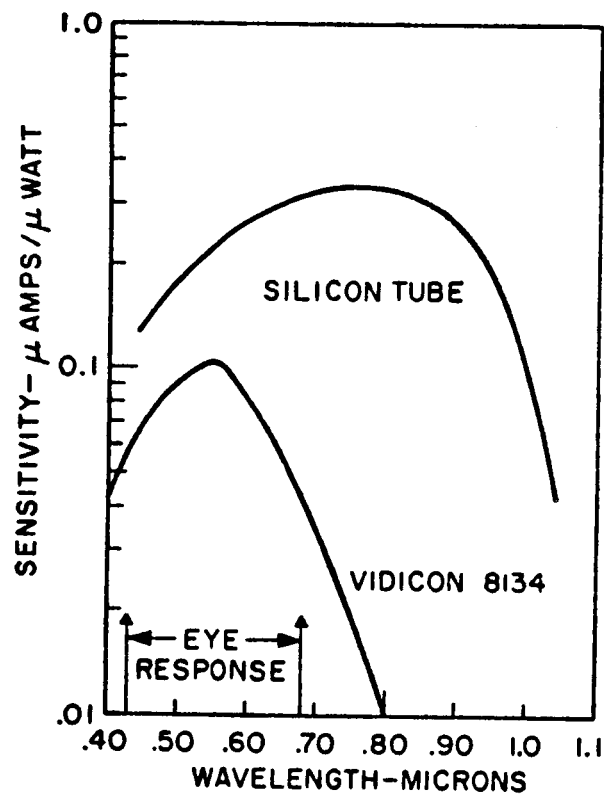


FIG. 1 - COMPARISON OF A SILICON DIODE
ARRAY CAMERA TUBE WITH A VIDICON

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